

REMARKS

Claims 37 and 80 have been amended to correct typographical errors.

Claims 78-82 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Rivoir et al. (U.S. Patent 5,703,588) in view of Dempsey (U.S. Patent 6,414,6616). This rejection is traversed for the following reasons.

Claim 78 recites "A digital potentiometer comprising: a first reference terminal, and second reference terminal, and a plurality of impedance devices between the first and second reference terminals". The Examiner indicates that the coarse resistors R_c described by Rivoir et al. correspond with "a plurality of impedance devices" as recited by Claim 78. In this case, the V_{REFP} and V_{REFN} terminals described by Rivoir et al. must correspond with first and second reference terminals as recited by Claim 78.

Claim 78 further recites "at least one first structure, with each said first structure comprising a permanently-on switch in parallel with one of the impedance devices". An example of a "first structure" is illustrated in Fig. 5 of Applicant's disclosure, which shows a portion of a shunted resistor structure 400, which includes permanently-on switch 408 in parallel with resistor 402. (See also, Specification, paragraph [0113]).

The Examiner suggests that MSB decoder 51 of Rivoir et al. corresponds with a "first structure" as recited by Claim 78. Although it is not explicitly stated in the rejection, the Applicant assumes that the Examiner intended for one or more of the switches in the switch pairs Sc_0'/Sc_0'' to Sc_2^c . $1'/Sc_2^c-1''$ to correspond with a "switch in parallel with one of the impedance devices" as recited by Claim 78. Rivoir et al. teach that MSB decoder 51 activates one of the switch

pairs Sc_0'/Sc_0'' to Sc_2^{c-1}'/Sc_2^{c-1}'' , such that the upper node of a selected coarse resistor R_c is coupled to lead A and the lower node of the selected coarse resistor is coupled to lead B.¹ (Rivoir et al., Col 7, lines 1-15.) In this configuration, the voltage difference between lead A and lead B is always equal to the coarse voltage step V_{Rcstp} , with lead B having a variable voltage offset V_{offset} . The variable voltage offset V_{offset} is dependent on the selected coarse resistor. (Rivoir et al., Col. 7, lines 15-26.) This voltage relationship between lead A and lead B is critical to the operation of the circuit.

It is important to note that each switch pair of Rivoir et al. is connected in series with the associated coarse resistor. Switches connected in parallel with a coarse resistor R_c would undesirably short this coarse resistor when activated. Such a short would prevent Rivoir et al. from achieving the above-described voltage relationship between lead A and lead B, thereby rendering the circuit of Rivoir et al. non-functional. For this reason, Rivoir et al. teach away from the use of a "switch in parallel with one of the impedance devices" as recited by Claim 78.

In addition, the Examiner indicates that Rivoir et al. fail to teach a "permanently-on switch" as recited by Claim 78. However, the Examiner indicates that Dempsey teaches such a permanently-on switch. More specifically, the Examiner states that "Dempsey teaches ... a permanently-on switch (See column 5, lines 39-41) connects the end of a

¹For example, Fig. 6 of Rivoir et al. shows that when MSB decoder 51 activates the "1" output signal, switch pair Sc_1'/Sc_1'' is activated (and all of the other switch pairs are de-activated), thereby connecting the associated coarse resistor R_{c1} between nodes A and B.

ladder network to a circuit component". This permanently-on switch must be represented by the right-most switch in Fig. 3 of Dempsey, as this is the only switch shown in a closed state. This permanently-on switch of Dempsey is connected in series with right-most resistor 2R to ensure that the termination leg of the R/R2 ladder is tied to ground. (Dempsey, Col. 5, lines 37-43).

Because the permanently-on switch of Dempsey is connected in series with the associated resistor 2R, Dempsey fails to teach "a permanently-on switch in parallel with one of the impedance devices" as recited in Claim 78. Thus, neither Rivoir et al. nor Dempsey teaches "a permanently-on switch in parallel with one of the impedance devices" as recited in Claim 78.

Moreover, even if Dempsey taught a permanently-on switch connected in parallel with an impedance device as recited by Claim 78, there would be no motivation to use this permanently-on switch with the circuit of Rivoir et al., as this switch would render the circuit of Rivoir et al. non-functional by shorting the coarse resistors. More specifically, a permanently-on switch connected in parallel with a coarse resistor of Rivoir et al. would cause the leads A and B to exhibit substantially the same voltage, thereby preventing the above-described voltage relationship from existing between leads A and B.

In addition, Rivoir et al. teaches that lead B has a variable voltage offset V_{offset} , which is dependent on the selected coarse resistor. However, Dempsey teaches that the function of the permanently-on switch is to ensure that the termination leg is connected to ground. These contrary teachings also teach away from the use of the permanently-on switch of Dempsey in the circuit of Rivoir et al..

For the above-described reasons, Claim 78 is allowable over Rivoir et al. in view of Dempsey.

Claims 79-82, which depend from Claim 78, are allowable over Rivoir et al. in view of Dempsey for at least the same reasons as Claim 78. Note that Claim 80 has been amended to provide proper dependency on Claim 79.

Claims 83-85 have been objected to as being dependent upon a rejected base claim. The Examiner has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Because the Applicant believes that the base claims are allowable for the reasons set forth above, the Applicant is not amending Claims 83-85 at this time.

Applicant has added new Claim 114-122. Consideration of these new claims is requested.

CONCLUSION

Claims 37-122 are pending in the present application. Claims 37-77 and 87-113 are allowed, and Claims 83-85 are allowable. Reconsideration and allowance of Claims 78-82 and 114-122 is requested. If there are any questions, please telephone the undersigned at (925) 895-3545 to expedite prosecution of this case.

Respectfully submitted,



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